CLAIMS

What is claimed is:

1.   A method for multiple inputs, multiple outputs (MIMO) power spectral density (PSD) allocation in a digital subscriber line (DSL) system, the method comprising:

monitoring system performance by performing a multi-ended line test (MELT);

processing the MELT and,

allocating PSD based on at least one of system coupling power and system traffic.

2.   The method of claim 1 wherein performing a MELT further comprises:

dynamically determining the near end cross talk (NEXT)/ECHO couplings at a customer premises (CP) location.

3.   The method of claim 1 wherein performing a MELT further comprises:

dynamically determining the near end cross talk (NEXT)/ECHO couplings at a central office (CO) location.

4.   The method of claim 1 wherein performing a MELT further comprises:

dynamically determining the far end cross talk (FEXT) couplings at a customer premises (CP) location.

5.   The method of claim 1 wherein performing a MELT further comprises:

dynamically determining the far end cross talk (FEXT) couplings at a central office (CO) location.

6.   The method of claim 1 wherein processing the MELT further comprises processing the MELT by a disruptive method.

7.   The method of claim 1 wherein processing the MELT further comprises processing the MELT by a non-disruptive method.

8.   The method of claim 7 wherein the non-disruptive method further comprises an active method.

9.   The method of clam 7 wherein the non-disruptive method further comprises a passive method.

10.   The method of claim 1 wherein the allocation of PSD based upon system coupling power further comprises implementing a full mask control scheme.

11.   The method of claim 1 wherein the allocation of PSD based upon system coupling power further comprises implementing a selective bit control scheme.

12.   The method of claim 1 wherein the allocation of PSD based upon system coupling power further comprises implementing a power swap scheme.

13.   A system for dynamically monitoring and allocating upstream and downstream power spectral density (PSD) of a transceiver set, the system comprising:

    a monitor for performing multi-ended line tests (MELT);

    a controller, responsive to the monitor, for dynamically allocating upstream and downstream PSD; and

    a table of upstream PSD and downstream PSD for each time (t) and each line.

14.   The system of claim 13, wherein the monitor is receptive to *a priori* information from other system levels.

15.   The system of claim 13, wherein the controller is receptive to *a priori* information from other system levels.